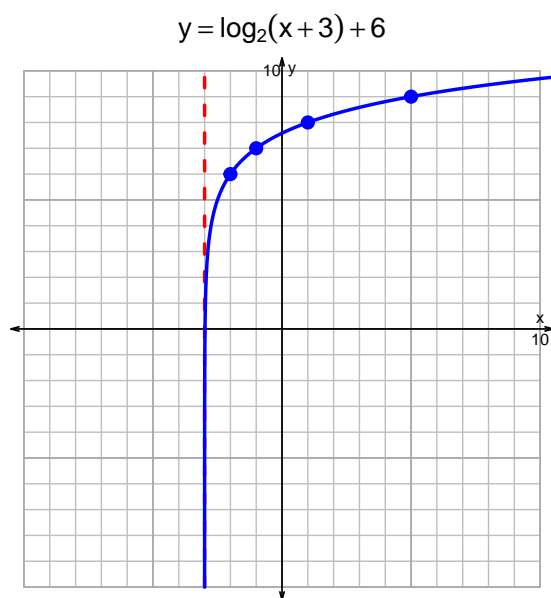
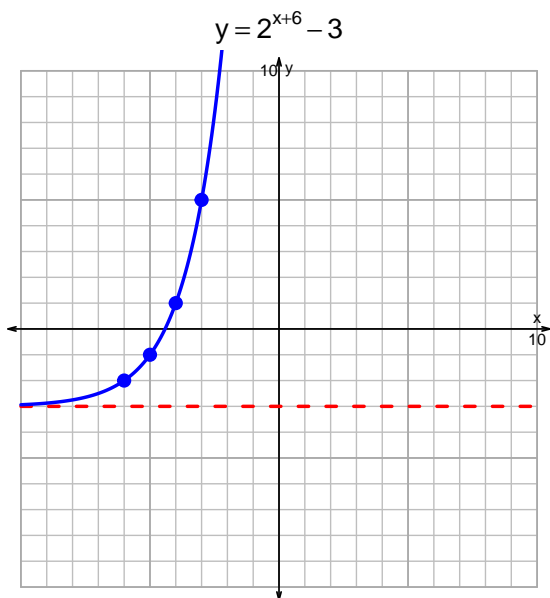


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v263)

1. Graph $y = 2^{x+6} - 3$ and $y = \log_2(x+3) + 6$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$17 = \left(\frac{5}{4}\right) \cdot 10^{3t/7}$$

Divide both sides by $\frac{5}{4}$.

$$\frac{17 \cdot 4}{5} = 10^{3t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{17 \cdot 4}{5} \right) = \frac{3t}{7}$$

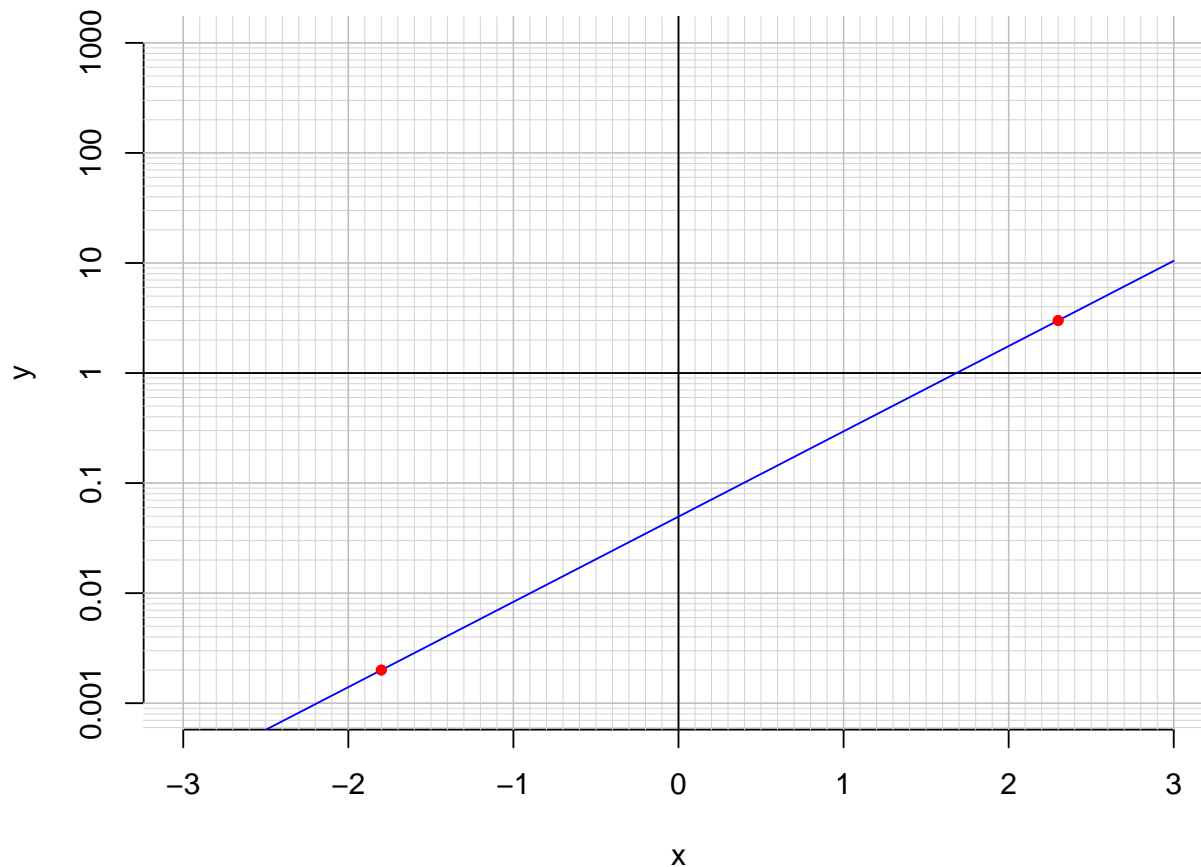
Divide both sides by $\frac{3}{7}$.

$$\frac{7}{3} \cdot \log_{10} \left(\frac{17 \cdot 4}{5} \right) = t$$

Switch sides.

$$t = \frac{7}{3} \cdot \log_{10} \left(\frac{17 \cdot 4}{5} \right)$$

3. An exponential function $f(x) = 0.0496 \cdot e^{1.78x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(2.3)$.

$$f(2.3) = 3$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{1.78} \cdot \ln\left(\frac{x}{0.0496}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.002)$.

$$f^{-1}(0.002) = -1.8$$